

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

MIC-M096

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Signature Filed Electronically

Typed or printed name _____

Application Number

10/759,786

Filed

January 15, 2004

First Named Inventor

Peter Chambers

Art Unit

2193

Examiner

Chat C. Do

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

/Carmen C Cook/

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

Signature

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09/17/2007

Registration number if acting under 37 CFR 1.34 _____

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Peter Chambers, Joseph James Judkins III		
Title:	Numerical Value Conversion Using a Look-Up Table for Coefficient Storage		
Serial No.:	10/759,786	Confirmation No.:	8161
Examiner:	Chat C. Do	Group Art Unit:	2193
Docket No.:	MIC-M096	Filing Date:	January 15, 2004

September 17, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Arguments in Support of Pre-Appeal Brief Request for Review

Dear Sir:

The below arguments are filed in support of the accompanying Pre-Appeal Brief Request for Panel Review filed with a Notice of Appeal in compliance with 37 CRF 41.31.

In the Final Office Action dated 6/20/2006, the Examiner maintains his rejection of claims 1-21 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. The Examiner also maintains his rejection of claims 1-11, 13, 15-21 under either 35 U.S.C. §102(b) or 35 U.S.C. §103(a) based primarily on the Kelly reference (U.S. Patent 5,942,992). No prior art rejections were made to claims 12 and 14.

With regard to the §101 rejection, the Examiner contends, *inter alia*, that:

(1) The claimed invention is structured similarly to *Benson* (*Gottschalk, Comr. Pats. v. Benson et al.*, 175 USPQ 673 (1972)) which is directed to non-statutory subject matter.

(2) The claims merely disclose steps of performing mathematical conversion in hardware without expressly disclosing a practical application or useful and tangible result of the final result of the conversion.

(3) The claims appear to pre-empt every substantial practical application of the idea embodied by the claims.

With regard to the prior art rejections, the Examiner contends, among other things, that:

(1) The splitter, the multiplier and the adder in component 507 of Figure 5 of Kelley constitute the arithmetic logic unit for receiving the full N-bit digital input value 204.

(2) Figure 6 of Kelly discloses that the operating temperature is measured and fed directly to engineering converter system 701 for converting to temperature unit.

Applicant submits that the Examiner's §101, 102(b) and 103(a) rejections of the claims are in error and the claims are in fact directed to statutory subject matter meeting the requirements of §101 and furthermore are patentable over the Kelly reference. The errors in the Examiner's rejection are as follows.

(A) The Examiner mischaracterized the claimed invention.

The claimed invention of claims 1-21 is a device and a method for performing numerical value conversion of an N-bit digital input value. The claimed invention is **not** directed to a specific **equation or formula for computing** the conversion. Rather, the claimed invention provides a way to perform these numerical value conversions that is efficient and incorporates useful features (see paragraph [0063] of Applicant's specification). More specifically, to perform numerical conversions, a set of coefficients is required. In the prior art, for each separate kind of numerical conversion, a separate ALU is used to perform each different kind of numerical conversion. The inventors of the present application realized that a look-up table can be used to store coefficients for different types of conversions so that only a single ALU is required to perform various types of numeral conversion.

The claimed invention of claims 1-21 describes using a look-up table to store the conversion coefficients. The look-up table is indexed using a parameter that may or may not be the digital input value itself. After the coefficients are retrieved, then an arithmetic logic unit is used to compute the conversion result using an applicable equation. Independent claims 1 and 13 **do not** recite any equation or formula. Even when an equation is recited in the dependent claims, the claimed invention **does not** recite the computation steps of the equation or formula but rather, the claimed invention deals only with the application of the equation in the numerical value conversion process. While one cannot patent Ohm's law, one is allowed to patent a device or a method applying Ohm's law.

The Examiner contends that the claimed invention is structured similar to Benson. However, inspection of the claims in question in the Benson case reveals that the claims are directed to a **formula** for converting binary code to pure binary. The court in Benson states that:

It is conceded that one may not patent an idea. But in practical effect that would be the result ***if the formula for converting binary code to pure binary were patented*** in this case. The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment

below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself. *Benson*, at 677, emphasis added.

Thus, the reason that the claims in *Benson* were rejected is because the claims were directed to a mathematical formula. The claims in *Benson* were nothing other than the computation steps of a formula. To the contrary, the claimed invention of claims 1-21 does not recite the computation steps of a mathematical formula. Rather, the claimed invention concerns storing coefficients in a look-up table, retrieving the coefficients and using an ALU to perform the necessary computation for numerical value conversion.

The Examiner **erroneously interpreted** the claimed invention of the present claims as merely an algorithm for numerical conversion. When the claimed invention is viewed as a whole, the claimed invention in fact **does not recite any computational steps for an equation**, a formula or an algorithm as in the case of *Benson*. The claimed invention is a method for performing such conversion and is statutory subject matter.

(B) Claims 1-21 are directed to a practical application

For claims including such excluded subject matter to constitute statutory subject matter, the claimed invention as a whole must accomplish a practical application. That is, it must produce a “useful, concrete and tangible result.” See *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998). A complete disclosure should contain some indication of the practical application for the claimed invention. There is no requirement that the claims themselves recite a practical application.

The claimed invention of claim 1 receives information (digital input value), processes the information (numerical value conversion) in one way and generates a useful, concrete and tangible result in the form of a digital output value in a unit of physical measurement which may be stored and then used or relied upon by other systems or by users. Therefore, the claimed invention of claim 1 *as a whole* provides a useful, concrete and tangible result and accomplishes a practical application.

More specifically, the result of the claimed invention of claims 1-21 is a digital output value in a natural unit being a real-world parameter. The result of the claimed device is useful because it allows the digital output value to be readily interpreted by a user or by other systems. The digital output value is a digital value expressed in units of physical measurement such as degree Centigrade, volts, ampere, Decibels and watts. Therefore, the

digital output value of the claimed device is a real world result and is tangible. Finally, the digital output value generated by the claim device is concrete as the result is repeatable and reproducible. That is, the numerical value conversion carried out in claims 1-21 will give the same digital output value for the same digital input value.

The Examiner erred in asserting that the claims do not disclose a practical application. By reciting a useful, tangible and concrete result in the form of a digital output value in a natural unit, the claims of the present application necessarily recites a practical application under the law and meet statutory subject matter requirement.

(C) The Claimed Invention Does Not Preempt Other Numerical Conversion Methods

Because the claimed invention of claims 1-21 does not recite the steps of a formula or an equation, the claimed invention of claims 1-21 does not preclude others from performing numerical value conversions. Rather, the claimed invention is directed to one specific way of performing numerical value conversion from an arbitrary unit to a natural unit. Other ways to perform the conversion is possible as evident by the Kelly reference. At least the Kelly reference introduced a second way of performing numerical value conversion.

The present claims only seek to foreclose from others from performing numerical value conversion using all of the other steps in the claimed device, such as the use of a look-up table for storing coefficients for the conversion and the use of a first parameter to index the look-up table. The Examiner erred in contending that the claims are so broad and sweeping as to cover every substantial practical application of the idea. The “idea” of performing numerical value conversion is not pre-empted and other methods for numerical value conversion are possible.

(D) Kelly does not perform numerical conversion on all N bits of the input data

In order to make Kelly read on claims 1 and 13, the Examiner contends that the “splitter” is part of the arithmetic logic unit. However, Kelly made clear that the splitter 206 is merely a “split...in the data bus” to separate the high order bits from the low order bits. (Kelly, col. 5, ln. 11-12.) The splitter does not perform any numerical value conversion.

Claims 1 and 13 recite using an arithmetic logic unit to perform numerical value conversion. The multiplier and adder are components of an ALU for performing such conversion. A splitter that merely splits the data does not form part of an ALU. Regardless of how the Examiner read the Kelly reference, the Examiner erred in contending that Kelly

performs numerical value conversion on all N-bits of the digital input data. Kelly stated clearly that only the lower order bits are operated on.

(E) Kelly does not use an operating condition or temperature as indexing parameter

In all the embodiments disclosed by Kelly, Kelly uses only the *higher order bits* as the address for the memory device storing the coefficients. The high order bits act as a means to fetch the coefficients from the memory device. Kelly describes in Figure 6 how to couple a thermocouple measurement setup to the engineering unit converter system. Then Kelly describes in Figure 7 the internal configuration of the engineering unit converter system for processing the temperature data. Thus, Kelly merely describes using temperature as the digital input value. Kelly still uses the high order bits of the digital data of the temperature to index the memory table (see Figure 7). Kelly does not describe using a first parameter that is a system operating condition and not the digital input value to index the memory, as recited in claims 8 and 19. Kelly further does not describe using the operating temperature as the first parameter where each coefficient in the look-up table corresponds to an assigned range of the operating temperature. Kelly is merely converting the temperature data itself but not using the temperature to index the memory table to retrieve the appropriate coefficients, as recited in claims 9 and 20.

The Examiner erred in his interpretation of Kelly that Kelly discloses the limitations of claims 8, 9, 19 and 20.

Summary

For the above reasons, Applicant submits that claims 1-21 are directed to statutory subject matter. The Examiner's §101, §102(b) and §103(a) rejection of the claims is in error and should be withdrawn. If the Examiner(s) would like to discuss any aspect of this application, the Examiner(s) are invited to contact the undersigned at (408) 382-0480, x208.

Certificate of Electronic Transmission

I hereby certify that this correspondence is being submitted electronically to the United States Patent and Trademark Office using EFS-Web on the date shown below.

/Carmen C Cook/	September 17, 2007
Attorney for Applicant(s)	Date of Signature

Respectfully submitted,

/Carmen C Cook/

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Reg. No. 42,433